

## REMARKS

Applicants appreciate the Examiner's thorough examination of the present application as evidenced by the Office Action of June 2, 2005 (hereinafter "Office Action"). Applicants especially appreciate the allowance of Claims 27, 30, 41, 44, and 49. In response, Applicants respectfully submit that the cited references do not disclose or suggest, at least, the recitations of the pending independent claims. Accordingly, Applicants submit that all pending claims are in condition for allowance. Favorable reconsideration of all pending claims is respectfully requested for at least the reasons discussed hereafter.

### The Abstract

The Abstract stands objected to because the title is printed at the top of the page. In response, Applicants have deleted the title of the invention at the top of page 28 of the Specification.

### Independent Claims 1, 9, 19, and 33 are Patentable

Independent Claim 1 stands rejected under 35 U.S.C. §103(a) as being obvious over U. S. Patent No. 6,597,927 to Eswara et al. (hereinafter "Eswara") in view of U. S. Patent No. 6,011,786 to Dent (hereinafter "Dent"). Independent Claims 9 and 19 stand rejected under 35 U.S.C. §103(a) as being obvious over Eswara in view of U. S. Patent No. 6,298,081 to Almgren et al. (hereinafter "Almgren") and Dent. Independent Claim 33 stands rejected under 35 U.S.C. §103(a) as being obvious over Eswara in view of Almgren, Dent, and U. S. Patent No. 6,256,486 to Barany et al. (hereinafter "Barany").

Independent Claim 1 is directed to a cellular communication system and recites, in part:

a cell group that comprises a plurality of cells that are respectively associated with the plurality of base station transceivers and with a plurality of primary frequencies, such that in each of the plurality of cells the respectively associated base station transceiver uses the respectively associated primary frequency to communicate control information, communication of the control information being constrained to the respectively associated primary frequency, and uses coordinated frequency hopping based on a hopping

sequence over the plurality of primary frequencies to communicate traffic information;

wherein each of the plurality of cells has predefined control time slots associated therewith that are used to communicate the control information and has predefined traffic time slots associated therewith that are used to communicate the traffic information and **at least one idle time slot separates at least one of the predefined control time slots from at least one of the predefined traffic time slots, which are associated with different primary frequencies.** (Emphasis added).

Claims 9, 19, and 33 include similar recitations. According to the recitations highlighted above, one or more control time slots are separated from one or more traffic time slots by at least one idle time slot. Moreover, the control time slot(s) and traffic time slot(s) are associated with different frequencies. This is illustrated, for example, in FIG. 8D of the Specification where an idle time slot (represented as a blank entry in the table) is inserted between time slots associated with different frequencies.

In rejecting independent Claims 1, 9, 19, and 33, the Office Action acknowledges that Eswara does not disclose or suggest that one or more idle time slots separate one or more control time slots from one or more traffic time slots that are associated with different frequencies. (Office Action, page 3, 8, and 18). The Office Action alleges, however, that FIGS. 5 and FIGS. 8A through 8C of Dent provide the missing teaching. Applicants respectfully disagree with this interpretation of the teachings of Dent. Turning first to FIG. 5, this figure illustrates the use of control channels in a wireless communication system. The time slots surrounding the control channel time slots are left blank because the purpose of this figure is to illustrate the use of control channels for associated cells (see, e.g., Dent, col. 8, lines 13 - 47).

Turning to FIGS. 8A through 8C, Dent provides more detail with respect to the use of the time slots that are not used for the control channel for a particular cell. Referring now to FIG. 8A of Dent, for cell/sector  $i$ , time slot  $t_1$  on frequency  $f_u$  is used for the control channel  $C_i$ . The remaining time slots used in sector  $i$  are assigned to traffic or, if not used for traffic, are used to communicate the control channels for adjacent cells  $j$  and/or  $k$ . (Dent, col. 10, lines 61 - 65). Nowhere in FIGS. 8A through 8C or in the accompanying text does Dent illustrate, describe, or suggest inserting an idle time slot between a control time slot on a first

frequency and a traffic time slot on a second frequency, different from the first frequency as recited in independent Claims 1, 9, 19, and 33. In fact, Dent teaches against leaving a time slot idle and instead recommends using any idle/unassigned time slot to communicate a control channel for a neighboring cell because this "can help radiotelephones to more easily capture the control channel, because the signals from multiple signal paths may be combined in the radio telephone's equalizer to achieve diversity-enhanced reception." (Dent, col. 10, line 67 - col. 11, line 3).

Accordingly, for at least the foregoing reasons, Applicants respectfully submit that independent Claims 1, 9, 19, and 33 are patentable over Eswara, Dent, Almgren, and Barany, and that Claims 2, 3, 5 - 8, 11, 12, 14- 18, 21, 22, 24, 25, 28, 29, 31, 32, 35, 36, 38, 39, 42, 43, 45, 46 are patentable at least as they depend from an allowable claim.

#### **Independent Claim 48 is Patentable**

Independent Claim 48 stands rejected under 35 U.S.C. §103(a) as being obvious over Eswara in view of Almgren. Independent 48 recites, in part:

a base station subsystem; and  
a mobile terminal that is configured to use a control frequency to exchange control information between the mobile terminal and the base station subsystem, the exchange of control information being constrained to the control frequency, and is configured to use coordinated frequency hopping based on a hopping sequence over a plurality of traffic frequencies to exchange traffic information between the mobile terminal and the base station subsystem;

**wherein frequencies associated with an auxiliary cellular communication system coexist within a same bandwidth defined by the plurality of traffic frequencies.** (Emphasis added).

According to Claim 48, the frequencies within the auxiliary cellular communication system coexist within a same bandwidth defined by the plurality of traffic frequencies. In rejecting Claim 6, the Final Action alleges that Eswara discloses an auxiliary cellular communication system that coexists within a same bandwidth defined by a plurality of primary frequencies in FIG. 4. Applicants respectfully disagree with this interpretation of Eswara's teachings. With reference to FIG. 3, Eswara explains that the four beams A, B, C, and D shown in FIG. 4

"would have an assigned set of traffic frequencies for use by MSs and a control frequency for assigning traffic frequencies.." (Eswara, col. 3, lines 45 - 48). Applicants can find no disclosure or suggestion in Eswara indicating that one or more frequencies used in one of the beams A, B, C, or D may be within the bandwidth defined by frequencies used in another one of the beams A, B, C, or D. Moreover, Almgren fails to provide the missing teaching.

Accordingly, for at least the foregoing reasons, Applicants respectfully submit that independent Claim 48 is patentable over Eswara in view of Almgren.

**Independent Claim 50 is Patentable**

Independent Claim 50 stands rejected under 35 U.S.C. §102(e) as being anticipated by Barany. Independent Claim 50 recites, in part:

assigning a control frequency to a cell in which the mobile terminal is located;

using the control frequency to exchange control information between the mobile terminal and the base station subsystem, the exchange of control information being constrained to the control frequency;

assigning a plurality of traffic frequencies to the cell in which the mobile terminal is located, each of the plurality of traffic frequencies being associated with an equivalence class of frequencies;

**randomly selecting a frequency from each of the plurality of equivalence classes of frequencies; and**

**using the randomly selected frequencies to communicate traffic information between the mobile terminal and the base station subsystem.**

(Emphasis added).

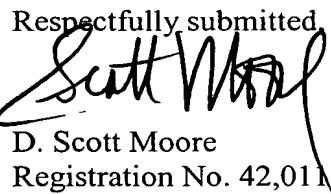
Applicants respectfully submit that Barany does not disclose or suggest, at least, the highlighted recitations above. That is, Barany does not disclose or suggest using randomly selected frequencies from each of a plurality of equivalence classes of frequencies to communicate. The Final Action alleges that Barany discloses randomly selecting a frequency from each of the plurality of equivalence classes of frequencies at col. 14, lines 55 - 56. This passage of Barany cited in the Final Action refers to the use of a packet random access channel (PRACH) for uplink communications. Applicants respectfully disagree, however, that the use of a PRACH discloses randomly selecting a frequency from each of the plurality of equivalence classes of frequencies as recited in Claim 50. In the art of radio access

protocols, a PRACH is used to address the problem of how to share a common broadcast channel. Thus, the term "random" when used with respect to a random access channel means that there is no predictable or schedule time for a mobile station to transmit. Applicants submit that use of a PRACH has nothing to do with randomly selecting a frequency from each of a plurality of equivalence classes of frequencies and using the randomly selected frequencies to communicate traffic information between a mobile terminal and a base station subsystem.

Accordingly, for at least the foregoing reasons, Applicants respectfully submit that independent Claim 50 is patentable over Barany.

#### CONCLUSION

In light of the above amendments and remarks, Applicants respectfully submit that the above-entitled application is now in condition for allowance. Favorable reconsideration of this application, as amended, is respectfully requested. Alternatively, Applicants respectfully request entry of the present amendment as introducing no new issues and narrowing the issues for further consideration. If, in the opinion of the Examiner, a telephonic conference would expedite the examination of this matter, the Examiner is invited to call the undersigned attorney at (919) 854-1400.

Respectfully submitted,  
  
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